

In rejecting claim 17, the Examiner makes an assumption that if a separation distance between a test surface and a second surface is held constant while Casimir force measurements are carried out, with the second surface positioned over different regions of the test surface, the different Casimir force levels measured will have the same value. Based on this assumption, the Examiner concludes that it is not possible to determine defects in surfaces as claimed by claim 17, since claim 17 requires comparing different measured force values to determine defects in the test surface. However, the Applicant disagrees with the Examiner's assumption and conclusion because, in addition to being dependent upon the separation distance between the surfaces, the Casimir force exerted between surfaces depends upon the shape (or geometry) of the surfaces. (See page 5, lines 4-14 of the Specification). Thus, if the separation distance between the surfaces is maintained constant and the shape of at least one surface changes, the Casimir force exerted between the surfaces changes. (This property is utilized by the present invention to determine defects in surfaces. (See page 5, lines 15-20 of the Specification)). Thus, the rejection of claim 17 as failing to comply with the enablement requirement must be withdrawn.

II. CLAIM REJECTIONS UNDER 35 U.S.C. §103

On page 3 of the Office Action, claims 9-11, 14, 17, 18, 21, 22, 25 and 28 were rejected under 35 U.S.C. §103(a) as being unpatentable over Martin et al. (U.S. Patent No. 5,283,442) in view of Takahashi et al. (U.S. Patent No. 6,537,648). Further, claims 16, 19 and 27 were rejected under 35 U.S.C. §103(a) as being unpatentable over Martin et al. as modified by Takahashi et al. and applied to claim 9 above and further in view of Edwards et al. (U.S. Patent No. 6,094,971).

Claim 9 includes "holding the first surface a known separation distance from a second electrically conductive surface having a known shape." The Office Action states that Martin shows

this limitation. Specifically, the Examiner states that bringing the probe tip within a preselected distance and then moving the probe tip so as to maintain the same force is considered equivalent to holding the first surface (probe tip) a known separation distance from a second surface (measured surface). As mentioned above, in Section I of the remarks, the dependency of the Casimir force upon shapes of surfaces is utilized by the present invention to determine defects in surfaces. Therefore, moving the probe tip so as to maintain the same force is not equivalent to the above-noted limitation of claim 9, since the separation distance has to be changed in order to maintain the same force when there are variations in the shape of the measured surface. Thus, Martin does not teach or suggest the above limitation of claim 9. Further, the other references cited by the Examiner also do not teach or suggest this limitation. Additionally, other limitations of claim 9 are also not taught or suggested by the cited references. Therefore, independent claim 9 is believed to be allowable.

Independent claim 21 has elements similar to that of independent claim 9. Thus, for the same reasons as independent claim 9, Applicant submits that independent claim 21 is allowable. Moreover, Applicant respectfully submits that the dependent claims are also allowable by virtue of their dependency, either directly or indirectly from the allowable independent claims. Further, the dependent claims set forth numerous elements not shown or suggested in the cited references.

In view of the foregoing, Applicant respectfully requests reconsideration and allowance of claims 9-19 and 21-28. Favorable action upon all claims is solicited.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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